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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/633,182

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Satoshi Hata

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EXAMINER

RIGGLEMAN, JASON PAUL

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/633,182

Applicant(s)

HATA, SATOSHI

Examiner

Jason P. Riggelman

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1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>Foreign reference</u> . |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/23/2007 has been entered.

Status of Claims

2. Applicant's amendments filed 7/23/2007 have been received. The current pending claims are 1-7. Claims 1 and 5 are amended.

Response to Arguments

3. Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection.

Drawings

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the pressure sensor must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate

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prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "2a" in Fig. 2. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the

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examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Remarks

6. The "steam" turbine is considered as the intended use of the extraneous matter removing system, as there are no limitations present in the claims, which define the steam turbine. Therefore, little patentable weight has been given to this limitation.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moriya (Japanese Patent Publication No. 61-169627) in view of Hibara (Japanese Patent Publication No. 60-69214).

9. Moriya teaches a turbine having a casing 1 defining a duct 2 and turbine moving blades (dynamic vane 6) rotating with a rotor 11 and a stator blade (dynamic vane 6) which is located upstream of the moving blade and is held on the casing side and housed within the duct 2. The duct is operatively positioned to introduce a fluid to the turbine blades and the moving blade (dynamic vane 6) is rotated by a fluid introduced into the duct 2. A pressure gage (differential pressure gauge 15) is operatively positioned to detect the pressure between the stator blade and moving blade. A first water injection nozzle 12 is disposed in the duct 2 and is connected to a water supply.

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The water injection nozzle 12 is disposed at a position upstream to the stator blade (dynamic vane 6). There is a control unit (16) for regulating the water injection nozzle 12 upon exceeding a predetermined pressure (water is injected until the pressure drops below the predetermined pressure) to remove dust.

10. Moriya does not teach a valve; however, it has been held that an obvious choice in design is not patentable (*In re Kuhle* 188 USPQ 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Moriya to create a valve opened by a control unit as this is a common fluid control mechanism.

11. Moriya, as modified above, does not teach the closing of a water injection valve above a predetermined maximum pressure; however, it has been held that an obvious choice in design is not patentable (*In re Kuhle* 188 USPQ 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Moriya, as modified above, to create a steam turbine in which cleaning is not performed if the pressure is dangerously high since blade cleaning would increase the pressure.

12. In regards to claims 2-3, Moriya, as modified by above, does not teach water injection nozzles located in the stator blades; however, Hibara teaches the use of water injection from a stator blade to clean stator blade scale. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Moriya with Hibara to create a means to prevent the adhesion of scale. The combination of Moriya, as modified by Hibara, teaches the cleaning of the back surface of the moving blades (by the injection nozzles located in the stator blades) because the moving blades are located downstream of the stator blades, Fig. 1 of Moriya.

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13. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moriya (Japanese Patent Publication No. 61-169627) and Hibara (Japanese Patent Publication No. 60-69214) in view of Rice (US Patent No. 4,384,452).

14. Moriya teaches a turbine having a casing 1 defining a duct 2 and turbine moving blades (dynamic vane 6) rotating with a rotor 11 and a stator blade (dynamic vane 6) which is located upstream of the moving blade and is held on the casing side and housed within the duct 2. The duct is operatively positioned to introduce a fluid to the turbine blades and the moving blade (dynamic vane 6) is rotated by a fluid introduced into the duct 2. A pressure gage (differential pressure gauge 15) is operatively positioned to detect the pressure between the stator blade and moving blade. A first water injection nozzle 12 is disposed in the duct 2 and is connected to a water supply. The water injection nozzle 12 is disposed at a position upstream to the stator blade (dynamic vane 6). There is a control unit (16) for regulating the water injection nozzle 12 upon exceeding a predetermined pressure (water is injected until the pressure drops below the predetermined pressure) to remove dust.

15. Moriya does not teach a valve; however, it has been held that an obvious choice in design is not patentable (*In re Kuhle* 188 USPQ 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Moriya to create a valve opened by a control unit as this is a common fluid control mechanism.

16. Moriya, as modified above, does not teach the closing of a water injection valve above a predetermined maximum pressure; however, it has been held that an obvious choice in design is not patentable (*In re Kuhle* 188 USPQ 7). It would have been

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obvious to one of ordinary skill in the art at the time of the invention to modify Moriya, as modified above, to create a steam turbine in which cleaning is not performed if the pressure is dangerously high since blade cleaning would increase the pressure.

17. In regards to claim 2, Moriya, as modified by above, does not teach water injection nozzles located in the stator blades; however, Hibara teaches the use of water injection from a stator blade to clean stator blade scale. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Moriya with Hibara to create a means to prevent the adhesion of scale. The combination of Moriya, as modified by Hibara, teaches the cleaning of the back surface of the moving blades (by the injection nozzles located in the stator blades) because the moving blades are located downstream of the stator blades, Fig. 1 of Moriya.

18. In regards to claim 6, Moriya, as modified by Hibara, does not disclose stator blade surface reforming; however, Rice discloses coating the stator blade, which is a type of surface reforming described by Applicant (col. 9, ll. 35-55; see entire document as well). At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Moriya, as modified by Hibara, with Rice for the benefit of having to do fewer repairs on the equipment.

19. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moriya (Japanese Patent Publication No. 61-169627) in view of Rice (US Patent No. 4,384,452).

20. Moriya teaches a turbine having a casing 1 defining a duct 2 and turbine moving blades (dynamic vane 6) rotating with a rotor 11 and a stator blade (dynamic vane 6)

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which is located upstream of the moving blade and is held on the casing side and housed within the duct 2. The duct is operatively positioned to introduce a fluid to the turbine blades and the moving blade (dynamic vane 6) is rotated by a fluid introduced into the duct 2. A pressure gage (differential pressure gauge 15) is operatively positioned to detect the pressure between the stator blade and moving blade. A first water injection nozzle 12 is disposed in the duct 2 and is connected to a water supply. The water injection nozzle 12 is disposed at a position upstream to the stator blade (dynamic vane 6). There is a control unit (16) for regulating the water injection nozzle 12 upon exceeding a predetermined pressure (water is injected until the pressure drops below the predetermined pressure) to remove dust.

21. Moriya does not teach a valve; however, it has been held that an obvious choice in design is not patentable (*In re Kuhle* 188 USPQ 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Moriya to create a valve opened by a control unit as this is a common fluid control mechanism.

22. Moriya, as modified above, does not teach the closing of a water injection valve above a predetermined maximum pressure; however, it has been held that an obvious choice in design is not patentable (*In re Kuhle* 188 USPQ 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Moriya, as modified above, to create a steam turbine in which cleaning is not performed if the pressure is dangerously high since cleaning would increase the pressure.

23. In regards to claim 7, Moriya does not teach stator blade surface reforming; however, Rice discloses coating the stator blade, which is a type of surface reforming

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described by Applicant (col. 9, ll. 35-55; see entire document as well). At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Moriya, as modified above, with Rice for the benefit of having to do fewer repairs on the equipment.

24. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moriya (Japanese Patent Publication No. 61-169627) in view of Rice (US Patent No. 4,384,452).

25. Moriya teaches a turbine having a casing 1 defining a duct 2 and turbine moving blades (dynamic vane 6) rotating with a rotor 11 and a stator blade (dynamic vane 6) which is located upstream of the moving blade and is held on the casing side and housed within the duct 2. The duct is operatively positioned to introduce a fluid to the turbine blades and the moving blade (dynamic vane 6) is rotated by a fluid introduced into the duct 2. A pressure gage (differential pressure gauge 15) is operatively positioned to detect the pressure between the stator blade and moving blade. A first water injection nozzle 12 is disposed in the duct 2 and is connected to a water supply. The water injection nozzle 12 is disposed at a position upstream to the stator blade (dynamic vane 6). There is a control unit (16) for regulating the water injection nozzle 12 upon exceeding a predetermined pressure (water is injected until the pressure drops below the predetermined pressure) to remove dust.

26. Moriya does not teach a valve; however, it has been held that an obvious choice in design is not patentable (*In re Kuhle* 188 USPQ 7). It would have been obvious to

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one of ordinary skill in the art at the time of the invention to modify Moriya to create a valve opened by a control unit as this is a common fluid control mechanism.

27. Moriya, as modified above, does not teach the closing of a water injection valve above a predetermined maximum pressure; however, it has been held that an obvious choice in design is not patentable (*In re Kuhle* 188 USPQ 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Moriya, as modified above, to create a steam turbine in which cleaning is not performed if the pressure is dangerously high since cleaning would increase the pressure.

28. Moriya, as modified above, does not teach the turbine moving blade surface reforming; however, Rice discloses coating the moving blade (Column 9, Lines 35-55). Coating is described by the Applicant as a type of surface reforming. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Moriya, as modified above, with Rice for the benefit of having to do fewer repairs on the equipment.

Conclusion

29. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kuesters et al. (US Patent No. 6659715) teaches a turbine having a cleaning liquid injection nozzle located in a guide blade.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason P. Riggleman whose telephone number is 571-272-5935. The examiner can normally be reached on M-F, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jason P Riggelman
Examiner
Art Unit 1746

JPR



MICHAEL BARR
SUPERVISORY PATENT EXAMINER